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09/529,269	04/10/2000	Kensaku Abe	6640/59442	1633

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Jay H Maioli
Cooper & Dunham
1185 Avenue of the Americas
New York, NY 10036

EXAMINER

LAO, LUN S

ART UNIT PAPER NUMBER

2643

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/529,269

Applicant(s)

ABE ET AL.

Examiner

Lun-See Lao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-11 and 13-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This action responds to the amendment filed on 02-17-2004. Claims 1, 5, 9-11 and 13 have been amended and claims 1, 3-11 and 13-15 are pending.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Andrea et al (US PAT. 5,251,263).

Consider claim 13, Andrea teaches a headphone comprising:

a box (see fig.11) for housing a microphone element (see fig.8, (70,60)) for detecting sound around a user, a signal acoustic transducing element (fig.8, 50) functioning as a sound source for canceling the sound around the user, an adjusting section (see fig.11, (120)) including an adjusting element manually operable by the user for adjusting a cancel amount of the ambient sound around the user within a range of 50 HZ to 1.5 kHz (ANC unit cancels a noise range 0-4khz (which including the limitation from 50Hz to 1.5 KHZ) and see col.9 line 15-32) (see col.14 line 30-43); and

an output terminal (see fig.11,100) for a microphone audio signal whose sound is collected by the microphone element (see fig.8, (60', 70')), and an input terminal for a cancel audio signal supplied to the signal acoustic transducing element (see fig.8, (50) and col.14 line 30-43).

Consider claims 14-15, Andrea teaches the headphone of the adjusting section (see fig.11, (120)) comprises means (see fig.9) for adjusting gains to the microphone audio signal from the microphone element (see fig.8, (70,60)); and the adjusting section (see fig.11 (120)) comprises means (see fig.9) for adjusting gains to the cancel audio signal input to the signal acoustic transducing element (see fig.8,(50) and col.14 line 30- col.15 line 11).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-5 and 9 -11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrea (US PAT. 5,251,263) in view of Ueno (US PAT. 5,341,254).

Consider claim 1, Andrea teaches an acoustic apparatus comprising:
a headphone section mounted on a user head (see fig. 10),

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having a microphone element (60', 70') for detecting sound around the user and a signal acoustic transducing element (50) functioning as a sound source for canceling the sound around the user, housed in a headphone box (see fig.10), with a first output terminal for outputting a microphone audio signal (60', 70') collected by the microphone element and a first input terminal for inputting a cancel audio signal supplied to the signal acoustic transducing element (50) (see col.3 line 25-col.4 line 55); and

a control circuit section (see fig.11, 100) independent from the headphone section have a second input terminal connected (see fig.11, 140) to the first output terminal (see fig.10, 60") and a second output terminal connected (see fig.11, 140) to the first input terminal (see fig.10, 60") for controlling at least frequency characteristics and inherently gain characteristics of the microphone audio signal from the microphone element of the headphone section input through the second input terminal (see fig.11, 140), for generating the cancel audio signal for canceling the sound around the user, and for supplying the cancel audio signal to the signal acoustic transducing element of the headphone section (see fig.10, 60") through the second output terminal (see fig.11,140 and col.5 line 25-col.6 line 60); whereby ambient sound around the user is cancelled in a range of 50 Hz to 1.5 kHz (ANC unit cancels noise ranging from 0 to 4 kHz which includes the range of 50 Hz to 1.5 KHz, see col. 9, lines 15-32); but Andrea does not clearly teach the control circuit section including recording means for recording the microphone audio signal output from the microphone element.

However, Ueno teaches the control circuit section including recording means (see fig.2 (14) recording/playback device) for recording the microphone audio signal output from the microphone element (see abstract).

Therefore, It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the teaching of Andrea and Ueno to provide an apparatus for switching REC and PB modes of a tape recorder that can be connected to an external earphone or headphone and external microphone to perform recording and reproduction by using one jack as an input/out jack.

Consider claim 3, Andrea teaches the control circuit section further comprises: means for inherently adding different audio signals (see fig.10 (60', 70') from feedback sensors) cancellation to the cancel audio signal using a signal audio converter element (see (see fig.10, (50) and col.5 line 25-col.6 line 45).

Consider claim 4, Andrea teach that the acoustic apparatus of the control circuit section further comprises:

means for inherently adding different audio signals (See fig.10 (60', 70') from feedback sensors) to the cancel audio signal using a signal audio converter element as a sound source (see fig.10, 50 and col.5 line 25-col.6 line 45); but Andrea does not clearly teach a remote control configured to supply remote-control signals for remotely controlling output of the different audio signals.

However, Ueno teaches a remote control configured (see fig.12, 16)) to supply remote-control signals for remotely controlling output of the different audio signals (see fig.3 (18,20,28) and col.3 line 60-col.4 line 50).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Andrea and Ueno to achieve a noise reducing device for user easily to use the control system.

Consider claim 5, Andrea teaches an acoustic apparatus comprising:
a headphone section (see fig.10) mounted on a user head, having a microphone element (60', 70') for detecting sound around the user and a signal acoustic transducing element functioning as a sound source for canceling the sound around the users housed in a headphone box (see fig.10), with a first output terminal (see fig.10,60") with an adjusting section for adjusting an output of a microphone audio signal collected by the microphone element and a first input terminal (see fig.10, 60") for inputting a cancel audio signal supplied to the signal acoustic transducing element (see col.6 line 45-col.8 line 30), and

a control circuit section (see fig.11, 100) arranged in a housing independent from the headphone section (see fig. 10) and having a second input terminal connected (see fig.11, 140) to the first output terminal (see fig.10,60") and a second output terminal (see fig.11, 140) connected to the first input terminal (see fig.10, 60") for controlling at least frequency characteristics and inherently gain characteristics of the microphone audio signal from the microphone element (fig.10, (60', 70')) of the headphone section input through the second input terminal (see fig.11,140), for generating the cancel audio signal that can serve as a sound source for canceling the sound around the user, and for supplying the cancel audio signal to the signal acoustic transducing element of the headphone section through the second output terminal (see col.8 line 35-col.9 line 65),

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whereby ambient sound around the user is cancelled in a range of 50 Hz to 1.5 kHz (ANC unit cancels noise ranging from 0 to 4 kHz which includes the range of 50 Hz to 1.5 KHz, see col. 9, lines 15-32); but Andrea does not clearly teach the housing also having arranged therein recording means for recording the microphone audio signal output from the microphone element.

However, Ueno teaches the housing also having arranged therein recording means (see fig.2 (14) recording/playback device) for recording the microphone audio signal output from the microphone element (see abstract).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Andrea and Ueno to provide an apparatus for switching REC and PB modes of a tape recorder that can be connected to an external earphone or headphone and external microphone to perform recording and reproduction by using one jack as an input/out jack.

Consider claim 9, Andrea teaches an acoustic apparatus comprising:

a headphone section mounted on a user head (see fig.10), having a microphone element (70', 60') for detecting sound around the user and a signal acoustic transducing element (50) functioning as a sound source for canceling the sound around the user housed in a headphone box, with a first output terminal for outputting a microphone audio signal collected by the microphone element and a first input terminal for inputting a cancel audio signal supplied to the signal acoustic transducing element (50) (see col.3 line 25-col.4 line 55); and

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a gain characteristics (see fig.11, 100) of the microphone audio signal from the microphone element of the headphone section input (see fig.10, 60") through the second input terminal (see fig.11,140), with said frequency characteristics and gain characteristics being adjusted to achieve a predetermined level at a predetermined frequency between 50 Hz and 1.5 kHz, to generate the cancel audio signal that can cancel the ambient sound around the user within a range of 50 Hz to 1.5 kHz (ANC unit cancels noise ranging from 0 to 4 kHz which includes the range of 50 Hz to 1.5 KHz, see col. 9, lines 15-32), and supplying the cancel audio signal to the signal acoustic transducing element of the headphone section through the second output terminal (see col.8 line 35-col.9 line 65), but Andrea does not teach remote controller connected to said recording/playback device for controlling operation of said recording/playback device and feeding the microphone audio signal to the recording/playback device, said remote controller being independent from the headphone section and including a control section having a second input terminal connected to the first output terminal and a second output terminal connected to the first input terminal for controlling at least frequency characteristics.

However, Ueno teaches remote controller (see fig.3, (16) connected to said recording/playback device (14) for controlling operation of said recording/playback device (14) and feeding the microphone audio signal (28,18) to the recording/playback device (14), said remote controller (16) being independent from the headphone section (20) and including a control section (14) having a second input terminal (15) connected to the first output terminal (17, 21) and a second output terminal (15) connected to the

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first input terminal (17, 19) and controlling at least frequency characteristics (see col.3 line 60-col.4 line 50).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Andrea and Ueno to provide an apparatus for switching REC and PB modes of a tape recorder that can be connected to an external earphone or headphone and external microphone to perform recording and reproduction by using one jack as an input/out jack.

Consider claim 10, Andrea teaches an acoustic apparatus comprising:

a headphone section mounted on a user head (see fig.10), having a microphone element (60', 70') for detecting sound around the user and a signal acoustic transducing element (50) functioning as a sound source for canceling the sound around the user housed in a headphone box (see fig.10), with a first output terminal (see fig.10,60") for outputting a microphone audio signal collected by the microphone element and a first input terminal (see fig.10, 60") for inputting a cancel audio signal supplied to the signal acoustic transducing element (50) (see col.3 line 25-col.4 line 55);

a control circuit section (see fig. 11,100) arranged in a housing separate from the headphone section a second input terminal connected (see fig.11,140) to the first output terminal (see fig.10, 60") and a second output terminal (see fig.11, 140) connected to the first input terminal (see fig.10, 60") for controlling at least frequency characteristics and inherently gain characteristics of the microphone audio signal from the microphone element of the headphone section input (see fig.10, 60") through the second input terminal (see fig.11,140), for generating the cancel audio signal for canceling the

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ambient sound around the user within a range of 50 Hz to 1.5 kHz (ANC unit cancels noise ranging from 0 to 4 kHz which includes the range of 50 Hz to 1.5 KHz, see col. 9, lines 15-32), and for supplying the cancel audio signal to the signal acoustic transducing element (50) of the headphone section through the second output terminal (see col.8 line 35-col.9 line 65); and a circuit (see fig.9) configuration for canceling the surrounding sound used by the control circuit section that is of a feed-forward system (see col.14 line 45-col.15 line 15), but Andrea does not clearly teach a recording/playback device arranged in the housing for recording the microphone audio signal output from the microphone element.

However, Ueno teaches a recording/playback device (see fig.2 (14) recording/playback device) arranged in the housing for recording the microphone audio signal output from the microphone element (see abstract).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teaching of Andrea and Ueno to provide an apparatus for switching REC and PB modes of a tape recorder that can be connected To an external earphone or headphone and external microphone to perform recording and reproduction by using one jack as an input/out jack.

Consider claim 11, Andrea teaches an acoustic apparatus comprising:

a headphone section (see fig.10) mounted on a user head, having a microphone element (6', 70') for detecting sound around the user and a signal acoustic transducing element (50) functioning as a sound source for canceling the ambient sound around the user within a range of 50 Hz to 1.5 kHz (ANC unit cancels noise ranging from 0 to 4 kHz

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which includes the range of 50 Hz to 1.5 KHz, see col. 9, lines 15-32), housed in a headphone box, with a first output terminal (see fig.10, 60") for outputting a microphone audio signal collected by the microphone element and a first input terminal for inputting a cancel audio signal supplied to the signal acoustic transducing element (50) (see col.3 line 25-col.4 line 55), and

a gain characteristics (see fig.11, 100) of the microphone audio signal from the microphone element of the headphone section (see fig.10, 60") input through the second input terminal (see fig.11, 140), for generating the cancel audio signal for canceling the sound around the user, and supplying the cancel audio signal to the signal acoustic transducing element (50) of the headphone section through the second terminal (see col.8 line 35-col.9 line 65); and

a circuit (see fig.5 and 6) configuration for canceling the sound surrounding the user used by the control circuit section that is of a feedback system (see col.7 line 5- col.8 line 65), but Andrea does not teach a recording/playback device and a remote controller connected to said recording/playback device for controlling operation of said recording/playback device and feeding the microphone audio signal to the recording/playback device, said remote controller being independent from the headphone section and including a control section having a second input terminal connected to the first output terminal and a second output terminal connected to the first input terminal for controlling at least frequency characteristics.

However, Ueno teaches a recording/playback device (see fig.3, (14)) and a remote controller (see fig.3, (16) connected to said recording/playback device (14) for

controlling operation of said recording/playback device (14) and feeding the microphone audio signal (28,18) to the recording/playback device (14), said remote controller (16) being independent from the headphone section (20) and including a control section (14) having a second input terminal (15) connected to the first output terminal (17, 21) and a second output terminal (15) connected to the first input terminal (17, 19) and controlling at least frequency characteristics (see col.3 line 60-col.4 line 50).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Andrea and Ueno to provide an apparatus for switching REC and PB modes of a tape recorder that can be connected to an external earphone or headphone and external microphone to perform recording and reproduction by using one jack as an input/out jack.

6. Claims 13-15 rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimoto (US PAT. 5,937,070) in view of Andrea (US PAT. 5,251,263).

Consider claim 13, Nishimoto teaches a headphone comprising:

a box (see fig.1) for housing a microphone element (see fig.3, (8,9)) for detecting sound around a user, a signal acoustic transducing element (fig.3, 22) functioning as a sound source for canceling the sound around the user, an adjusting section (see fig.3, (39) including an adjusting element manually operable by the user for adjusting a cancel amount of the sound around the user (see col.3 line 42-col.4 line 35), but Nishimoto does not teach clearly a cancel amount of the ambient sound around the user within a range of 50 hz to 1.5 khz; and an output terminal for a microphone audio signal whose

sound is collected by the microphone element, and an input terminal for a cancel audio signal supplied to the signal acoustic transducing element.

However, Andrea teaches a cancel amount of the ambient sound around the user within a range of 50 hz to 1.5 khz (ANC unit cancels noise ranging from 0 to 4 kHz which includes the range of 50 Hz to 1.5 KHz, see col. 9, lines 15-32),); and an output terminal (see fig.1,100) for a microphone audio signal whose sound is collected by the microphone element (see fig.10, (60', 70')), and an input terminal for a cancel audio signal supplied to the signal acoustic transducing element (see fig.10, (50) and col.6 line 32-68).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Nishimoto and Andrea to provide an adaptive noise cancellation and speech enhancement system and apparatus for improving the quality of the output speech obtained from subtracting noise from a signal having a speech signal and noise.

Consider claims 14-15, Nishimoto teaches the headphone of the adjusting section (see fig.3, (39)) comprises means for adjusting gains to the microphone audio signal from the microphone element (8,9); and the adjusting section (see fig.3 (39)) comprises means for adjusting gains to the cancel audio signal input to the signal acoustic transducing element (see fig.3,(22) and col.3 line 42-col.4 line 35).

7. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrea (US PAT. 5,251,263) as modified by Ueno (US PAT. 5,341,254) as applied to claim 5 above, and further in view of Trompler (US PAT. 4,928,311).

Consider claim 6, Andrea as modified fails to teach that the acoustic apparatus of an amplifier section is included in the headphone box behind the adjusting section for amplifying the microphone audio signal from the microphone element and for adjusting the microphone audio signal from the microphone element, where gains are controlled by amplifying the microphone audio signal.

However, Tromple teaches that the acoustic apparatus of an amplifier section is included in the headphone box behind the adjusting section (see fig.1 (44)) for amplifying the microphone (40) audio signal from the microphone element and for adjusting the microphone audio signal from the microphone element (40), where gains are controlled by amplifying the microphone audio signal (see col.2 line 35-50).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Andrea and Trompleri to achieve an noise reducing device for reducing the cost and the size of the unit and to be used more widely in cost sensitive and space sensitive environments.

Consider claims 7-8, Trompler teaches that the acoustic apparatus of an amplifier section for generating signals serving as a sound source for canceling the sound around the user and adjusting means (see fig.1, (44)) for adjusting an output level of the amplifier section are provided in the headphone box, and gains of the cancel audio signal input to the signal acoustic transducing element (36) are controlled (see col.2 line

30-col.3 line 60); and an adjusting section adjusts (see fig.2, (72,76)) the microphone audio signal from the microphone element that serves as a sound source for canceling the sound around the user and adjusts the microphone audio signal from the microphone element in the headphone box, said adjusting means (see fig.1,(44)) having operating means (see fig.1,44) operable by the user from outside the headphone box, and an amplifier section for amplifying the microphone audio signal adjusted at the adjusting section (see col.2 line 45-col.3 line 65).

Response to Arguments

8. Applicant's arguments with respect to claims 1, 3-11 and 13-15 have been considered but are moot in view of the new ground(s) of rejection.

As to applicant's arguments regarding "a separate recording unit" and "any noise cancellation to be affected" (remarks, page 11, 3rd and 4th paragraphs), these are not recited in the claims. See, for example, claim 1.

As to the argued motivation to modify Andrea (remarks, page 11, 5th paragraph), this was provided in the rejection of claim 1.

As to the argued "the cancellation of the ambient sound within the range of 50 Hz to 1.5 kHz" (remarks, page 11, 6th paragraph), this is met by Andrea in that the ANC unit cancels noise ranging from 0 to 4kHz, which includes the range of 50Hz to 1.5 KHz. See col. 9, lines 15-32.

Regarding claims 13-15, applicant argued that Nishimoto is silent concerning noise cancellation over the specified range of 50 Hz to 1.5 kHz (remarks, page 11, last

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paragraph through page 12, 3rd paragraph). The examiner's response is that Nishimoto is not relied on to teach noise cancellation over the specified range of 50 Hz to 1.5 kHz which is met by Andrea, as discussed above.

Regarding claims 6-8, applicant argued that Trompler is silent concerning noise cancellation over the specified range (remarks, page 12, 5th paragraph through page 13, 1st paragraph). The examiner's response is that Trompler is not relied on to teach noise cancellation over the specified range of 50 Hz to 1.5 kHz which is met by Andrea, as discussed above.

Conclusion

9. The prior art made of record and not relied upon is considered to applicant's disclosure.

10. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao, Lun-See
Patent Examiner
US Patent and Trademark Office
Crystal Park 2
(703305-2259)



DUC NGUYEN
PRIMARY EXAMINER